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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/035,111	12/27/2001	John M. Daly	TI-32944	1681

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EXAMINER
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ARNOLD, ADAM

ART UNIT	PAPER NUMBER
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2671

DATE MAILED: 11/10/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/035,111

Applicant(s)

DALY ET AL.

Examiner

Adam Arnold

Art Unit

~~2897~~ 2671

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 December 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gosper.

Referring to claim 1, Gosper discloses a method of detecting line crossover in a pair of lines (page 1, paragraph 2) comprising determining a starting and ending point for each line in the pair (page 1, paragraph 2); calculating a value for each line (page 1, paragraph 4); comparing the values for each line (page 1, paragraph 8); and detecting line crossover based on the comparison (page 1, paragraph 9). Gosper does not disclose determining an overlap interval. At the time the invention was made it would have been obvious to a person of ordinary skill in the art to determine an overlap interval. One of ordinary skill in the art would have been motivated to do this because the calculations will be effective regardless of whether there is an overlap interval. At page 2, Gosper illustrates a situation where there is an overlap interval. From this, it can be inferred that the author is dealing with the situation where there is an overlap interval, and the situation where there is none would result in no crossing lines.

Referring to claim 2, Gosper discloses where each a point on each line in the pair of lines is characterized by an X and Y value (page 1, paragraph 2) and where there is an overlap interval defined as beginning at a smallest X value shared by the lines and the largest X value shared by the lines (see drawing, page 2).

Referring to claim 3, the remarks presented above with respect to claims 1 and 2 apply equally to this claim.

Referring to claim 4, the remarks presented above with respect to claims 1 and 2 apply equally to this claim.

Referring to claim 5, Gosper discloses comparing the Y value for a first line and a second line and comparing a second Y value for the first line and second line (page 1, paragraph 3).

Referring to claim 6, Gosper discloses where a crossover has occurred if  $(Y1a \leq Y1b \text{ and } Y2a \geq Y2b)$  or  $(Y1a \geq Y1b \text{ and } Y2a \leq Y2b)$  are true (page 1, paragraph 3).

3. Claims 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gosper in view of Douglas. Gosper does not disclose where one of the lines has an undefined slope (i.e. vertical). Douglas discloses an algorithm for intersection of lines where one of the lines is vertical (page 4, middle of the page). At the time the invention was made it would have been obvious to a person of ordinary skill in the art to determine whether lines intersect when one of them is vertical. One of ordinary skill in the art would have been motivated to do this in order to make the crossing determination for this special case.

Referring to claim 8, Gosper does not disclose comparing a point Y2a, representing the Y value of the second line at the X value of the vertical line, with the Y value of a starting point of the vertical line and comparing Y2a with the Y value of an ending point of the vertical line. Gosper does disclose where 2 line segments cross if the end points of one of the segments lies above and below the line defined by the other line segment. With the special case of the vertical line, there is no above or below. The same logic applies to both situations, however.

Referring to claim 9, the remarks presented above with respect to claim 8 apply equally to this claim.

4. Claims 10-12 and 14-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Garton. Referring to claim 10, Garton discloses selecting a pair of lines from a set of lines defining a polygon, determining if the selected lines crossover, determining the polygon is not simple if the selected pair crossover and repeating the steps for the remaining lines (see top left Figure, page 3). Garton does not disclose a method for detecting an “invalid” polygon, but rather a non-simple polygon. At the time the invention was made it would have been obvious to a person of ordinary skill in the art to consider a polygon with crossover lines as “invalid.” One of ordinary skill in the art would have been motivated to do this because the terminology is irrelevant in defining the polygon. The only characteristic used in determining whether a polygon is “invalid” in this application is whether there is crossover. This is the same characteristic used in Garton to determine whether a polygon is simple.

Referring to claim 11, Garton discloses where the selected pair of lines do not share a common starting point (see top left Figure, page 3, where the selected pair of lines are the intersecting line segments).

Referring to claim 12, Garton discloses where the selected pair of lines do not share a common end point (see top left Figure, page 3, where the selected pair of lines are the intersecting line segments).

Referring to claim 14, Garton discloses where the set of lines is a set of all possible combination of pairs of lines in the polygon (see top left Figure, page 3, where all possible sets of lines are considered to determine if there is any crossover).

Referring to claim 15, the remarks presented above with respect to claims 10 and 11 apply equally to this claim.

Referring to claim 16, the remarks presented above with respect to claims 10 and 12 apply equally to this claim.

Referring to claim 17, Garton discloses where the validity of a polygon is tested after a new line is added to the polygon. On page 2, under Definition #1, Garton defines a polygon as a "closed chain of n line segments..." Under this definition, there will be no polygon (simple or otherwise) until the final line has been added closing off the chain. It is inherent in this definition that the validity will be tested after each new line is added until the chain is closed.

Referring to claim 18, the remarks presented above with respect to claim 17 apply equally to this claim.

Referring to claim 19, the remarks presented above with respect to claim 17 apply equally to this claim.

5. Claim 13 rejected under 35 U.S.C. 103(a) as being unpatentable over Garton in view of Gosper. Referring to claim 13, the remarks presented above with respect to claims 1 and 12 apply equally to this claim.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Adam Arnold** whose telephone number is **703-305-8413**. The examiner can normally be reached Monday-Thursday and alternate Fridays between 7:00 AM and 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Zimmerman, can be reached at (703) 305-9798.

**Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks  
Washington, D.C. 20231

**or faxed to:**

**(703) 872-9314 (for Technology Center 2600 only)**

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.



MARK ZIMMERMAN  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600